

The Examiner has rejected claims 1-4, 7, 11, 19, and 22 under 35 U.S.C. § 102(b), as being anticipated by Tsang et al., U.S. Patent No. 4,605,595. The Examiner urges that Tsang “discloses that suitable binders include epoxy resins and phenolic resins” and therefore “anticipated the claimed subject matter.” This rejection is respectfully traversed, for the reasons set forth below.

The claimed invention is “an acoustically damping composite article, comprising . . . a metal foam . . . having an open cell structure . . . impregnated with [a] polymer matrix so as to completely penetrate said open cell structure of said foam and fill the cells thereof.” This requires that the polymer matrix fills the cells of the foam, thereby providing the desired acoustically damping properties of the invention.

The specification teaches that the “resin component may be a neat resin or a neat blend of resins, or may include any catalysts, curing agents, or additives desired.” Specification at page 8. However, upon curing, these are all part of “the resin component” as the specification teaches and as persons of ordinary skill in the art would understand.

In contrast, Tsang et al. teaches away from this requirement, by teaching the use of fillers, friction modifiers, and reinforcing fibers in the epoxy. persons of ordinary skill in the art would not take any of these to be part of the resin. Neither does Tsang et al. describe them that way. Tsang et al. teaches that the resin binds together the fillers, friction modifiers, and reinforcing fibers. To the extent that the epoxy taught by Tsang et al. contains fillers, reinforcing materials, etc., it cannot “fill the cells” since some of the volume within the cells will be occupied by the fillers, friction modifiers, and reinforcing materials rather than the polymer. Indeed, from reading Tsang et al., one is left with the impression that most of the volume within the cells will be taken up by the these fillers, friction

modifiers, and reinforcing fibers, since these are the components that provide the properties Tsang et al. desires for this “Friction Article”.

The Examiner has rejected claims 1-4, 7, 19, and 22 under 35 U.S.C. § 102(b), as being anticipated by Reitz, U.S. Patent No. 4,759,000. The Examiner urges that “Reitz discloses the claimed invention expect [*sic*] for literally disclosing that the metal foam is an open celled foam” but that “it appears that the foam must inherently be an open cell foam because the pores of the foam are filled with the impregnate” (column 9, line 67 to column 10, line 11). This rejection is respectfully traversed, for the reasons set forth below.

The structure taught by Reitz et al. is “a porous metal foam such as aluminum-nickel impregnated with rubber.” Column 9 lines 67-69. In contrast to the elastomer impregnate taught by Reitz, the claimed invention requires “a non-elastomeric polymeric matrix” (claim 1).

Moreover, Reitz et al. clearly teaches away from the present invention, describing the cited structure as “an acoustic window . . . not . . . an acoustically absorptive material”. Column 10 lines 3-4. Reitz et al. teaches that acoustic absorption instead is produced by an entirely different structure: strands of wire immersed in a viscous fluid, mechanically coupled to a resonating mass (see, e.g., abstract).

The Examiner notes that Reitz et al. teaches a hardened silicone rubber as a suitable polymer, and that this appears to read on Applicant’s definition of a non-elastomeric polymer. However, it is clear that Reitz, in teaching that the silicone rubber is “permitted to cure or harden” is teaching only that it is allowed to cure sufficiently so that it is no longer liquid (col. 10, lines 1 and 2). It is clearly

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Applicant(s): Imam et al.

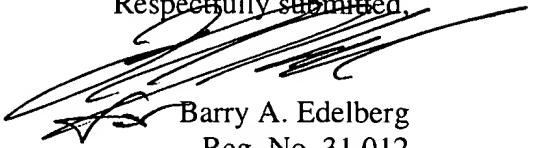
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still and elastomer since (1) a fully cured, non-elastomeric polymer requires heating, not simply "permitting" the liquid to cure, and (2) persons of ordinary skill in the art would recognize that a polymer sheet that must be "watertight" (col. 10, line 12) will be an elastomer, rather than a fully cured non-elastomer. On this latter point, the Examiner is invited to consider known materials that are used for watertight gaskets.

The Examiner has rejected claims 17, 18, 20, and 21 under 35 U.S.C. § 103(a), as being obvious from either Tsang or Reitz. For the reasons set forth above, incorporated by reference herein, this basis of rejection is likewise respectfully traversed.

For the foregoing reasons, the application is considered to be in condition for allowance. Applicants respectfully request favorable reconsideration. Kindly charge any additional fees due, or credit overpayment of fees, to Deposit Account No. 50-0281.

Respectfully submitted,

  
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